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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,276	05/25/2000	William D. Frazer	10992233	7054

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EXAMINER
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EL-SHAMMAA, MARY A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/579,276

Applicant(s)

FRAZER ET AL.

Examiner

Mary A. El-Shammaa

Art Unit

2881

-- **Th MAILING DATE** of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

## **DETAILED ACTION**

### ***Drawings***

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 154. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 153. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

The use of the trademarks DELRIN and TEFLON have been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Art Unit: 2881

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 19, 23-25, 28, 29, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Park et al (6,410,914).

Regarding claims 1-3, 6, 7, 19, 23-25, 28, 29, and 41, Park discloses an apparatus comprising an ionization chamber (4) which communicates with a vacuum chamber (2) as seen in Figure 1. This apparatus is used in conjunction with an electrospray device, which can be held at ground potential, within the ionization chamber. The electrospray device can be electrically connected to the ionization chamber (Col. 4, Lines 31-35). The apparatus also consists of an electrode (47) with an aperture (65), which directs the flow of a gas (see Figures 5a and 5b). Park also discloses a second electrode (62) with an aperture located in the ionization chamber (see Figure 4c). The apparatus produces a gas flow (61) that intersects the vacuum chamber in a manner that is orthogonal to the gas flow path (see Figures 1, 5a, and 5b and Col. 1, Lines 25-31).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 5, 15-17, 26, 27, and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Carnaham et al. (5,420,424).

Regarding claims 4, 5, 15-17, 26, 27, and 37-39, Park discloses the apparatus comprising the ionization chamber and vacuum chamber as discussed above. However, Park does not disclose the electrodes of said apparatus being parallel to one another and comprising flat surfaces, each electrode having opposite polarity. Carnaham does disclose first and second electrodes (21, 22) that are flat and parallel to one another and are arranged so as to be orthogonal to the gas flow (Col. 2, Lines 51-57 and Col. 4, Lines 51-53). Furthermore, each of the electrodes is supplied with a voltage being of opposing polarity to one another, said first electrode being supplied with either a positive or a negative voltage (Col. 3, Lines 11-27). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the arrangement of the electrodes and the electrode voltages disclosed by Carnaham to modify the apparatus disclosed by Park because the electrode configuration of Carnaham provides a more efficient means of delivering the ions into the vacuum chamber.

Claims 8 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Yano et al. (5,481,108).

Park's apparatus does not disclose either or both of said electrodes comprising a mesh portion. Yano discloses a first and a second electrode, both of which comprise a mesh portion (Col. 2, Lines 27-30 and 62-63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use electrodes having mesh portions in the apparatus of Park because the mesh allows for the uncharged particles to pass through.

Claims 9, 14, 21, 22, 31, 36, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Whitehouse et al. (6,060,705).

Park does not disclose an aperture in a plate or an electrospray assembly with a means for producing a stream of gas, nor does Park disclose a scupper attached to the second electrode. Whitehouse discloses a vacuum chamber with a vacuum interface that consists of a plate with an aperture (Col. 10, Lines 3-12). Whitehouse also discloses an electrospray apparatus provided with means for producing a gaseous stream (Col. 8, Lines 63-65). Whitehouse further discloses a scupper attached to the second electrode (Col. 4, Lines 54-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the apparatus so that the vacuum interface comprises an aperture wherein the electrospray assembly with means to produce a gaseous stream would be able to communicate with the ionization chamber. It would have also been obvious to attach a scupper to the second electrode in order to shape the beam and gas that pass through the chamber. Having the scupper be partially designed of mesh is design preference and would have been obvious.

Art Unit: 2881

Claims 10-13, 18, 20, 32-35, 40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Gourley et al. (5,753,910).

Park does not disclose the vacuum interface having a conduit with an axial bore. Park also does not disclose utility of the ionization chamber at atmospheric pressure. Gourley discloses a conduit having an axial bore (118) to communicate with the ionization chamber (104), said axial bore being comprised of any suitable material, including a metallic, conductively insulating material (see Figure 3, Col. 8, Lines 38-44, and Col.11, Lines 30-35). Said axial bore may also be constructed having a diameter of capillary dimension (Col. 4, Lines 24-32). Gourley also discloses an ionization chamber at atmospheric pressure and an interface voltage that is held at ground (Col. 3, Lines 27-30 and Col. 7, Lines 24-29). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the modifications taught by Gourley to procure a more efficient apparatus.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Apffel et al. (6,294,779).

Park discloses an apparatus for delivering ions to a vacuum chamber comprising a grounded electrospray assembly having a dispensing end within the ionization chamber. Park does not disclose said apparatus having three electric fields within the ionization chamber. Apffel introduces an apparatus (10) having several electric fields having angles associated with said electric fields (see Figure 1). Apffel further discloses angles associated with said electric fields, two angles being less than 90 degrees, and one being greater (Col. 6, Lines 26-56). It would have been obvious to one having ordinary skill in the art at the time the invention was

Art Unit: 2881

made to incorporate the electric fields taught by Apffel in order to efficiently guide the ions through the passageways of the apparatus.

*Conclusion*


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See U. S. Patent 6,278,110.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F(8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9318 for regular communications and 703.872.9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

mae  
October 15, 2002

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800